this, however, is not surprising, since, for many years, the University has had for examiner one of our ablest chemists and a most eloquent teacher. Nevertheless, observe the following questions, in which the italics are mine :—

"*Describe by equations* as many processes as you know for the preparation of oxygen gas." (1870.)

"*Explain by an equation* the process of making ammonia, &c." (1870.)

"*Give the names and formulæ* of the oxides of nitrogen, &c." (1870.)

These few are the *worst* detected after careful search; but columns of NATURE could be filled at once with the most unnatural questions in all the other subjects. The following, taken at random, will serve as brilliant specimens ; to me they are more heart-rending than the answers given by "Examiner," because even the worst of candidates are corrigible, while examiners do not appear to be so.

"Name the Sovereigns who were reigning in England at the close of each century from the ninth to the eighteenth successively." (1870.)

"Give some estimate of the population of England at the death of Charles II., &c." (1870.)

"Show how the present Royal Family is connected with the House of Tudor, tracing the pedigree to the end of the seventeenth century." (1869.)

"State the principal rules of English syntax." (1869.)

Moreover, candidates are positively compelled to cram their Latin and Greek translation ; the one Greek and the one Latin subject are selected "one year and a half previously," which makes competition of talent against talent so far practically an impossibility ; it is a mere trial of cramming against cramming. And is this portion of the examination of any practical value as proving the efficiency of a candidate ? Let the university answer for itself : "Special stress is laid on accuracy in the answers to the questions in Greek and Latin grammar." Comment is useless.

A much lower standard for Latin translation, and no selection one year and a half previously, would ensure a finer and more useful knowledge of a noble language; besides this, a little rational conduct on the part of examiners, and a far more vigorous and effective supervision of the papers by the Committee of the Senate, would enable education to go hand in hand with instruction, and learning to part company with cramming.

Most of us know what school training should be ; it should be such as would enlarge the mind, make it capable of comprehending the great and good, and open up a vista of happiness in early years. Teachers know what school training must be ; it must be such as will satisfy inexorable examiners, many of whom appear to be totally unmindful, not only of what should, but of what can, be taught during an ordinary boy's school life.

To one who regards education as the only means of placing man "a little lower than the angels," the questions given at elementary examinations are more than painful.

TEM. AUG. ORME

University College School

Volcano near Celebes

THE following note may be perhaps of interest for the readers of NATURE. March 2.—The Volcano Roeang, near Tagoelanda, the most southern of the Sangi Islands in the North of Celebes, began to make noises. March 5th.—In the evening, at seven o'clock, a frightful eruption took place ; three minutes afterwards a large sea-wave reached the shore of Tagoelanda, about one mile distant from Roeang, and destroyed three villages with 416 men. The mountain worked till March 14, with a heavier final eruption. March 30.—I was at the place and ascended the volcano, which is, according to my measurement, about 2,100 feet high. To proceed into the crater was impossible in consequence of the thick damps of sulphur.

The temperature of the soil at the bottom of the mountain near the sea-shore some inches deep was 45° Réaumur. I brought home a large collection of stones, &c. ; the masses thrown out were principally sulphur, ashes, sand, and mud, besides small and large stones, and even rocks. All details are contained in my diary. I then made a tour round the Sangi Islands, and am about at this moment to visit the isles of Bangka and Limbe in the north and east of North Celebes.

ADOLF BERNHARD MEYER

Manado, Celebes, April

NOTES

VICE-ADMIRAL E. OMMANNEY, C.B., F.R.S., proceeds to Antwerp to represent the Royal Geographical Society of London at the Congress of Geographical Science, which will be held in that city between the 14th and 22nd of this month.

MR. W. CARRUTHERS has just issued his official report for 1870 of the Botanical Department of the British Museum. Several of the Natural Orders and European and British representatives of other orders have been completely rearranged. The most important additions which have been incorporated into the herbarium during the year are : from Formosa, collected by the late Mr. Oldham ; from the Levant, 2,625 species by Prof. Haussknecht : from Martinique, by M. Hahn ; and from various districts of Europe. A large number of fungi have been added from Europe, and from North and South America and Cuba, and among other palæozoic additions, an important series of Devonian plants from Canada, presented by Principal Dawson, of Montreal, illustrating his published memoirs.

THE Monthly and Annual Reports have reached us of the Department of Agriculture of the United States of America for 1868 and 1869. The amount of information which is thus afforded by the Government to the citizens of the United States, may well astonish us in this country. They comprise Reports from practical men on a vast variety of subjects of the utmost importance to the cultivators of the soil : the cultivation of fruit ; the manures best adapted for different soils ; report of recent progress in steam culture ; meteorological statistics ; the physiology of *Trichina spiralis ;* abstract of laws relating to fences and wild stock ; tests for the authenticity of seeds ; agricultural statistics ; report of progress of beet-sugar manufacture in Europe, *et multa alia.*

THE discussion which took place before Parliament relating to the adoption of the metric system in England, is considered by French *savans* as highly discreditable to that body, and the result has occasioned much surprise there.

M. BRETON, one of the great Hachette firm, was returned a member of the Municipal Council of Paris in the Conservative interest. His majority was one vote, which was declared *nil,* as a man had voted without any right, and in spite of the exertions of the chairman of his voting section. Being older than M. Hérisson, his competitor, he was elected merely by the privilege of seniority. Two other publishers who had been candidates were unsuccessful, M. Gernier Baillière and M. Victor Masson.

NO stamp duty is to be imposed on newspapers in France, but a duty will be established on every description of printing-paper. For books it will 8*s.* per cwt. and for newspapers 16*s.* per cwt. Newspaper paper is of an inferior description, and will be charged twice as much as the superior kind. This absurdity is owing to the objection raised to the income-tax by several politicians, amongst them M. Thiers himself. But it is supposed he will very shortly give up his old prejudices.

MR. CARRUTHERS, the keeper of the herbarium at the British Museum, has been appointed consulting botanist to the Royal Agricultural Society.

ONE of the Whitworth Scholarships has recently been awarded to John Armitage, an artizan student at the Oldham School of Science and Art ; last year he gained the Department Silver Medal for Practical Geometry, and in 1869 the silver medal for Machine Drawing. Last year James Taylor, another artizan student from this school, also gained a Whitworth Scholarship, as well as the Department Gold Medal for Mathematics and the silver medal for Theoretical Mechanics.

A LAUDABLE attempt to encourage floriculture in London is an exhibition which was held yesterday in the churchyard of St.

Botolph, Bishopsgate, under the patronage of the rector, Rev. W. Rogers, in which prizes were offered for the best collection of flowers grown in the City.

AN exhibition of the Royal Cornwall Polytechnic Society will be held at Falmouth from the 11th to the 19th inst.

THE *Revue Scientifique* for August 5 contains a report of a very interesting lecture delivered before the Collège de France by M. Claude Bernard on the Influence of Heat on Animals, accompanied by a series of very careful experiments.

WE have received letters from a number of correspondents on the various subjects opened out by Mr. Howorth's "New View of Darwinism," and the replies to it; but the great pressure on our space compels us to close the discussion.

THE most recently received parts of the Bulletin de l' Académie Impériale des Sciences de St. Petersbourg, viz., vol. xv. part 3-5, and vol. xvi. part. 1, contain among others the following important papers:—Note on the Approximate Rectification of Certain Curves, by J. Somoff; On Tremblings of the Earth, by F. Argelander; Observations on the Planets at St. Petersburg, by A. Sawitsch; On the Physical Properties and Calorific Power of certain Petroleums of the Russian Empire, by M. Sainte-Claire Deville; On the Nervous System of Star-Fish, by Ph. Owsiannikof; Studies of Ozone, Oxygenated Water, and Ammonium Nitrite, by H. Struve; the Nervous System of *Lepas anatifera*, by Dr. E. Brandt; On Polydactylism, by Dr. Gruber; Short Diagnosis of New Plants from Japan and Mantchuria, by C. J. Maximowicz; On the Young of *Idothea entomon*, by E. Brandt; On the Gulf Stream to the East of the North Cape, by A. Middendorff; On the Osteology of the Hand and the Foot, and other Anatomical Papers, by W. Gruber; Rotation of the Plane of Polarisation by the Effect of Electro-Magnets, by Jegorof; On the Organisation of Gregarinidæ, by A. Stuart; Histological Studies on the Nervous System of Mollusca, by Ph. Owsiannikof; On Cerium, by D. Mendéleyf; On the Influence of the Displacements of the Axis of Rotation in the Interior of the Earth or the Level of the Sea, by Dr. H. Gylden.

A SECOND edition is just published of Prof. Corfield's Digest of Facts relating to the Treatment and Utilisation of Sewage. It has been revised throughout, and is issued entirely on the author's own responsibility, and not under the auspices of the British Association Committee. Considerable and important additions are made to the matter contained in the first edition.

THE second volume of the "Flora of Tropical Africa," containing the orders Leguminosæ to Ficoideæ, has just been issued. The work has been divided as follows among the botanists whose names are attached to the respective orders: Leguminosæ (Cæsalpinieæ and Mimoseæ), Rosaceæ, Saxifrageæ, and other small orders, Prof. Oliver; Cucurbitaceæ, Begoniaceæ, and Melastomaceæ, Dr. Hooker; Leguminosæ (Papilionaceæ), Mr. J. G. Baker; Passifloreæ and Samydeæ, Dr. M. T. Masters; Combretaceæ and Myrtaceæ, Prof. M. A. Lawson; Crassulaceæ, Mr. James Britten; Lythraceæ, Mr. W. P. Hiern. The proportion of new species described is very large.

THE Coal Commission appointed on June 28, 1866, "to inquire into the several matters relating to coal in the United Kingdom," have unanimously agreed to their report. The whole work of the Commission will be published as soon as possible in three volumes, with maps, sections, &c., which are all far advanced towards completion.

M. PANCERI, in a memoir recently presented to the Association of Naturalists and Physicians at Turin, claims to have established that the phosphorescent substance in fishes, in whatever part of the body it may be situated, is always fat, and that the phenomenon is due to its slow oxidation in contact with air. The skin of fishes is permeable to gases, and the oxidation of the sub-cutaneous fat proceeds without difficulty. Phosphorescence shows itself, as a rule, some time after death, and continues until putrefaction commences; as soon as a true decomposition sets in, accompanied by the disengagement of ammonia, phosphorescence ceases. Phosphorescence is prevented by the presence of fresh water, alcohol, or carbonic acid; oxygen, on the other hand, strengthens the phenomenon.

THE charge against Mr. Hampden of libelling Mr. Wallace was tried on Thursday week in the Secondary's Court. Our readers will remember that a wager of 500*l.* having been made between Mr. Hampden, who affirmed that the world was flat and not round, and Mr. Wallace, it was decided against the former, who thereupon abused Mr. Wallace as a liar and a swindler. The action now tried was for damages for these and other similar libels, and Mr. Hampden was condemned to pay 600*l.* damages.

MR. HELIODORO RUIZ, of Opin, in Colombia, New Granada, informs the Government of that country that he has been successful in treating snake bites by cauterisation. The province abounds with snakes of a deadly character, and he has treated seventy cases of bites. He simply drops melted sealing-wax on all the fang marks, and he considers the result is due less to cautery than to the complete exclusion of the air by the adhesion of the wax. At first he administered internally a few drops, but he has discontinued it, not finding it necessary.

SENOR PRIMO LOZANO, of Quibdo, in Colombia, reports to the Tiempo of Bogota that he has discovered a new way between the Atrabo and the Pacific superior to that by Napipi and Truando. The Napipi route has been repeated again by the U.S. explorers.

ON the 25th May a waterspout passed over the hill stations of Ootacamund in Southern India.

ON the 23rd May an earthquake was felt at Nynee Tal in the Himalayas. At that English hill station there is a beautiful lake, and it is now to be noted that since the earthquake it has emitted a strong sulphurous smell.

AN earthquake was felt on two days in May at Gilghit, above Cashmere, on the 22nd and 23rd.

ON the night of the 7th of June Calcutta was visited by one of the severest thunderstorms known for many years. Several houses were struck by lightning in the southern division of the city, but there was no loss of life.

ON the 19th June a strong earthquake was felt at Brooklyn and in the neighbourhood of New York. The shock was vertical.

THE largest tamarind tree in India, in the Khosru Gardens at Allahabad, fell down on the Queen's birthday. The stem was quite hollow. It was an ancient and well-known sight.

IRON telegraph poles have been introduced with great success in Switzerland, and their use is now being extended daily. It is considered that in a short time these iron posts will altogether replace wooden poles throughout Germany. We understand, also, that they are being largely adopted in connection with the Indian telegraph service.

A SPECIES of fish-crow (*Corvus caurinus*) is very abundant in the Oregon and Washington territories, where it is very troublesome to the Indians, stealing their dried fish and other provisions. It is never killed by them, from superstitious feelings, but is driven away by children set to watch for that purpose. In winter it subsists principally upon the refuse food and offal thrown out by the natives from their lodges, and is an attentive hanger-on at the residences of the white settlers. It is cunning, but very tame and impudent, allowing a very near approach, and when closely pursued retiring but a short distance. Like some species of gull, this bird is in the habit of carrying clams high in the air and then dropping them, in order to break the shell. Dr. Studley says: "In watching one thus employed I was very much amused at the unsuccessful endeavours he made to break the shell of a clam by letting it drop upon soft ground. He continued for a long time carrying and recarrying the same clam high aloft and fruitlessly dropping it on the prairie sod. He nevertheless persisted in his efforts until I became tired of watching him. What the result was I am unable to state."

THE BRITISH ASSOCIATION MEETING AT EDINBURGH

EDINBURGH, *Wednesday Morning*

THE proceedings of this year's meeting are now rapidly drawing to a close, so near, in fact, is the end, and so apparently far back in time is the beginning, that already it is easy to sum up the results, and to get a general view of the meeting in its various aspects.

The meeting has certainly been in every respect a most successful one; the weather has done all in its power to conduce to the enjoyment of the members, and to belie the southern notions as to climate. First, as to the attendance: The numbers attending the former meetings here have been almost, if not quite, doubled, and, in fact, we may assume that they have been much larger than was expected, otherwise another, though in some respects a less convenient arrangement for the sectional work would have been adopted. As it is, we have had all the sections massed in the University in the various class-rooms—an arrangement which reduces the necessary locomotion to a minimum, and gives the greatest facility to those who choose to visit all the sections, affording a striking contrast to the great waste of time and other inconveniences which resulted from the disconnected positions of some of the sections at Liverpool. The drawback is, that the numbers being so large, the small class-rooms have quite broken down in the matter of accommodation, and ingress and egress have been almost impossible.

But in British Association Meetings, as in other things, numbers alone must not be too much considered; and this leads us to the wonderful galaxy of physicists who apparently have come to Edinburgh to do honour to the President. The brilliancy of the gathering, both of British and Foreign men of science in the mathematical and physical section, has been the subject of general remark, and we refer to it, not at the expense of the other sections, but as an indication of what has happened there also, though not to such an extraordinary degree. Joule and Colding, Cayley and Sylvester, Thomson and Tait, Janssen and Huggins, Clifford and Spottiswoode, are combinations not to be seen every day, and the extreme interest of the discussions carried on under such conditions may be easily imagined, much more easily imagined, indeed, than described. Prof. Zenger, of Bohemia; Dr. Paul Güssenfeldt, of the University of Bonn; Prof. Van Beneden, of Louvain; E. L. Youmans, of New York; Rev. J. R. Loomis, LL.D., President of University of Lewisburg, U. S.; Prof. Dr. E. H. von Baumhauer, Secretary of the Dutch Society of Science, Haarlem; Dr. C. H. D. Buys Ballot, of Utrecht; C. Gilbert Wheeler, Professor of Chemistry at the University of Chicago; Dr. Baron R. Eötvös, Professor of Mathematics and Physics at the University of Pesth; Dr. D. Bierens de Haan, Professor of Mathematics, Leiden; are among the foreigners who have attended the meetings in addition to those alluded to last week; not to mention the names of many distinguished English and Scotch *savans*, who attend as representatives of various scientific bodies in different parts of the country.

Then as to the number of papers presented. With the exception of the Mechanical Section, presided over by Prof. Jenkin, the supply of papers has been superabundant, with a quality above the average. So numerous have been the papers in some sections, that divisions have been formed to enable them to be get through.

As to the local conditions of success, we need only say that the meeting is in one of the most beautiful cities of the world, the society of which takes its tone from a wide diffusion of intellectual culture, and where hospitality takes no refusal, and just escapes killing by kindness.

This meeting may be said to have really commenced on the day before the meeting of the General Committee, and of the delivery of the President's address, in consequence of the attendance of so many men of science at the graduation ceremonial of the University, to which we referred last week, when we gave the names of those who had the honorary degree of LL.D. conferred on them. We may here add that the recipients were introduced by Prof. Macpherson, the Dean of the Faculty of Law, in a way which greatly enhanced the value of the honour.

This ceremony was followed by the "capping" of ninety-six gentlemen who had just completed their studies. One of the secrets of Edinburgh's great success as a medical school appears to us to lie in the mode of bringing out originality among her students, which we would gladly see adopted in the science teaching of our English Universities. When a student takes the degree of M.D., he is required to write a thesis on some subject belonging to the sciences related to medicine. Gold medals are awarded for such theses as contain an amount of original work which is deemed worthy of the honour. The consequence of this is, that every year two or three, or even more, really good original memoirs are produced. These are, in very many instances, the nuclei of still greater things in after-life. Powers of research, which might otherwise have lain dormant, are brought out; and so at an early period of life, men get into the habit of doing original work. We are assured by Edinburgh men that the system is, as one would have expected, fraught with excellent results. Our wealthy English universities would do well to take a lesson from their poorer sister; and, instead of rewarding so highly mere grinding in science, they would do well to do something more to develop doers of original scientific work. On this occasion the gentleman who obtained the highest honours is Dr. Urban Pritchard.

This ceremony, after all, however, was merely the prelude. Prof. Bennett's graduation address was the first sensation of the meeting. Indeed, those who had come north with more acquaintance with Dean Ramsay's stories than with the present tone of thought, were simply astonished at the boldness with which Mr. Bennett handled subjects on which, it was imagined, any expression of opinions such as his would not be tolerated. Here, for instance, is a specimen:—

"At the congress of naturalists and medical men held at Innsbruck in 1869, Helmholtz claimed for Germany the principal agency in the progress of modern science. She owes this superiority, he said, to the boldness of her *savans* in propagating truth, whilst, he asserted, that in England and France they dare not do so openly, for fear of compromising their social interests. But I trust the time is past, even in Scotland, when scientific truth has anything to fear from superstitious bigotry or clerical intolerance. It is true that we are constantly hearing that there is a tendency to place new scientific doctrines in opposition to religious beliefs. But I would suggest that the cause of this is not that scientific men are irreligious, so much as that religious men are unscientific. It is utterly impossible, in these days, to oppose the most obvious facts, or persecute the great discoverers of the day, because the writers of the Old and New Testament, 1,800 or 3,000